

CURRICULUM VITAE

Arturo A. KELLER

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Education:

1992-1996	Stanford University, Ph.D. in Civil (Environmental) Engineering
1991-1992	Stanford University, M. S., Civil (Environmental) Engineering
1976-1980	Cornell University, B. S., <i>cum laude</i> , Chemical Engineering and B. A., Chemistry

Dr. Arturo Keller received his M.S. and Ph.D. degrees in Civil and Environmental Engineering from Stanford University. He holds a B.S. in Chemical Engineering and a B.A. in Chemistry from Cornell University. Dr. Keller has 28 years of experience in projects involving wastewater treatment, hazardous waste handling and management, pollution prevention and minimization, recycling and process modifications to reduce emissions. He is currently a Professor at the University of California in Santa Barbara, teaching at the graduate-level Bren School of Environmental Science and Management. His emphasis is in water quality management at the watershed level.

Dr. Keller has experience with watershed modeling through work with the USGS National Institutes for Water Resources, where he compared various watershed models and determining the sensitivity of the models to various inputs, using the Santa Ana River basin as a study area. Dr. Keller has also worked with the Electric Power Research Institute on watershed modeling and TMDL development in the Truckee River, the Catawba Basin (North/South Carolinas), Oostanaula Creek (for the Tennessee Valley Authority), and Cheat River (West Virginia, Acid Mine Drainage TMDL). In addition, Dr. Keller developed an organophosphate-pesticides watershed model for the Newport Bay watershed, to determine the point and non-point source loading and an analysis of Best Management Practices through simulation. Dr. Keller was a scientific advisor and facilitator in the development of the Nutrient TMDL for the Santa Clara River.

Dr. Keller also worked with the San Francisco Regional Water Quality Control Board, developing an implementation plan for the PCB TMDL in the San Francisco Bay. In addition, Dr. Keller has developed an advanced graduate level course for the second year MS and PhD students at the Bren School, on Sustainable Watershed Management. This course guides the students through the various steps involved in developing a watershed management plan, including a model, from collecting the data sets, delineating the watershed, setting up the various models (and understanding the processes being modeled: hydrology, sediment transport, biogeochemistry), to performing a calibration and running sensitivity analyses. Dr. Keller also teaches courses for water quality professionals on Sustainable Watershed Management.

Most relevant publications (out of 90+):

- Zhang, W, AA Keller, X Wang. 2008. Analytical Modeling of PAH Loading and Transport via Road Runoff in an Urban Region of Beijing, China. *Water Resour. Res.*, 45, W01423, doi: 10.1029/2008WR007004.
- Zheng, Y, and AA Keller. 2008. Stochastic Watershed Water Quality Simulation for TMDL Development – A Case Study in the Newport Bay Watershed. *JAWRA*, 44(6):1397-1410. DOI: 10.1111/j.1752-1688.2008.00232.x
- Keller, AA, Cavallaro, L. 2007. Assessing the US Clean Water Act 303(d) listing process for determining impairment of a waterbody. *J. Environmental Management*, doi:10.1016/j.jenvman.2006.12.013
- Zheng, Y., and AA Keller. 2007. Uncertainty assessment in watershed-scale water quality modeling and management: 1. Framework and application of generalized likelihood uncertainty estimation (GLUE) approach. *Water Resour. Res.*, Vol. 43(8):W08407, doi:10.1029/2006WR005345.

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- Zheng, Y., and AA Keller. 2007. Uncertainty assessment in watershed-scale water quality modeling and management: 2. Management objectives constrained analysis of uncertainty (MOCAU). *Water Resour. Res.*, Vol. 43(8):W08408, doi:10.1029/2006WR005346.
- Willis, M. and AA Keller. 2007. A framework for assessing the impact of land use policy on community exposure to air toxics. *J. Environ. Mgmt.*, 83:83–97, doi:10.1016/j.jenvman.2006.03.011
- Zheng, Y. and A.A. Keller, 2006a. Understanding parameter sensitivity and its management implications in watershed-scale water quality modeling, *Water Resour. Res.*, 42, W05402, doi:10.1029/2005WR004539.
- Keller, AA and Y Zheng, 2005. Approaches for Estimating the Margin of Safety in a Total Maximum Daily Load Calculation: Theoretical and Practical Considerations. *EPRI*, Palo Alto, CA. EPRI Report #1005473
- Keller, AA, Y Zheng and TH Robinson. 2004. Determining Critical Water Quality Conditions For Inorganic Nitrogen in Dry Semi-urbanized Watersheds. *J. Am. Water Res. Assoc.* 40(3):721-735.
- Auset, M, AA Keller, F Brissaud, V Lazarova. 2005. Intermittent filtration of bacteria and colloids at pore and column scales. *Water Resources Research*, 41(9), W09408 10.1029/2004WR003611
- Keller, AA and D. Griset, 2005. Stormwater Runoff Management and Synergistic Water Quality Planning related to Proposed Major Projects in the 2004 Regional Transportation Plan. *Cal. Dept. of Transportation*, Sacramento, CA.
- Robinson, TH, A Leydecker, AA Keller, JM Melack. 2005. Steps towards modeling nutrient export in Coastal Californian streams in a Mediterranean Climate. *Agricultural Water Management*, in press.
- Harrison, L, Jackson, M, Pettifor, G, Purpus, L, Splenda, J, White, S, Frew, J and AA Keller. 2005. Evaluation of the Impact of and Management Strategies for Diazinon and Chlorpyrifos in Newport Bay. California and the World Ocean '02. ASCE, pp. 1158-1163, doi:10.1061/40761(175)103
- Keller, AA and Y Zheng. 2004. Evaluation of Potential Water Quality Impacts from Different Future Growth Scenarios in the SCAG Area. Southern California Association of Governments, Los Angeles, CA.
- Zheng Y, AA Keller. 2003. Effect of the temporal scale of precipitation on water quality simulation: application to the Santa Clara River watershed. AWRA 2003 Intl Congress on Watershed Mgmt for Water Supply Systems, NY, NY.
- Wang, P, Keller, AA. 2009. Sorption and Desorption of Atrazine and Diuron onto Water Dispersible Soil Primary Size Fractions. *Water Research* 43:1448 – 1456; doi: 10.1016/j.watres.2008.12.031
- Wang, P, AA Keller. 2007. AgInput: an agricultural nutrient and pesticide source model. *Environmental Modeling & Assessment*. DOI: 10.1007/s10666-007-9133-3.

Synergistic Activities

- Associate Director of the NSF/USEPA funded UC Center for the Environmental Implications of Nanotechnology.
- Developed an organophosphate-pesticides watershed model for the Newport Bay watershed, to determine the point and non-point source loading and an analysis of Best Management Practices through simulation.
- Developed an advanced graduate level course for the second year MS and PhD students at the Bren School, on Sustainable Watershed Management. This course guides the students through the various steps involved in developing a watershed management plan, including a model, from collecting the data sets, delineating the watershed, setting up the various models (and understanding the processes being modeled: hydrology, sediment transport, biogeochemistry), to performing a calibration and running sensitivity analyses.
- Lead author of UC TSR&TP Report to the Governor of California on “Health & Environmental Assessment of MTBE” in 1998.

Courses at the Bren School of Environmental Science & Management:

ESM 202 Environmental Biogeochemistry, ESM 222 Fate & Transport of Pollutants in the Environment
ESM 223 Soil and Groundwater Quality Management, ESM 224 Sustainable Management of Watershed Quality, ESM 595F Advances in Pollution Prevention

Membership in Professional Organizations:

American Geophysical Union (AGU), Association of Environmental Engineering and Science Professors (AEESP), American Chemical Society (ACS), International Society for Industrial Ecology (ISIE), National Ground Water Association (NGWA), Society for Environmental Toxicology and Chemistry (SETAC).